

Zoomazium

This indoor/outdoor play space is highly adaptable to changing programs. It works year round at a high level of sustainable function, using daylighting, natural ventilation, and long-life materials.

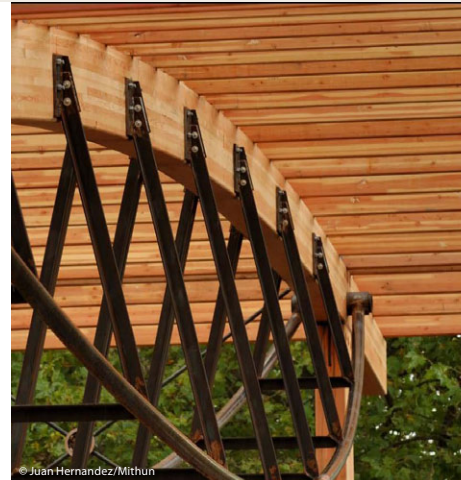
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Green Commercial Case Study

Integrated design, long life and adaptable space



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About Zoomazium

Type	Interpretive center for children
Square Feet	8,300
Location	Seattle's Woodland Park Zoo
Completed	May 2006

Woodland Park Zoo needed an interactive play and education space for children in ages 0 to 8 which would work year-round in Seattle's climate of warm, dry summers and wet, gray winters. The result, Zoomazium, is the first of its kind, a purpose-built indoor/outdoor nature play space in the heart of a naturalistic zoo. The building benefited from a highly integrated design process with very strong client involvement, and meets the zoo's organizational goals of long-life construction, very adaptable space, and sustainability.

Zoomazium houses an open exhibit space and stage area for around 200 visitors, workspace for six to eight staff, and a small animal holding area. Outside, the zoo has recreated Pacific Northwest nature in the heart of the city. Large windows, as well as building materials harmonized with adjacent planting connect interior with outdoors. A green roof planted with native species, reinforces the connection.

A strong commitment to daylighting and natural ventilation, together with sustainable materials, enabled the building to exceed Seattle's mandate and achieve a LEED Gold rating. Materials and equipment choices reflect the zoo's desire for a building life of greater than 50 years. The raised-floor system and uninterrupted interior space will allow great adaptability during that time.

Sustainable Responses

Site

The proportions and siting of the building were governed by proximity to the main zoo path, existing utility vaults, open space to the west, and preservation of significant existing trees. The main exhibit space is conceived as a room within the forest. The vegetated roof is a Northwest meadow elevated to the sky. The tall windows establish a strong visual connection to the forested area to the west.

Patterned or 'fritted' glass was suggested by an expert ornithologist to help reduce the likelihood of bird strikes. The pattern makes windows more visible to wildlife from the exterior, while appearing clear from the inside.

Ratings & Awards

LEED 2.1 Gold Rating
US Green Building Council, 2007

Best Green Project
Northwest Construction magazine, 2006

National THEA Outstanding Achievement Award
Themed Entertainment Association, 2006

Civic Design Citation Award
AIA Washington, 2007

Excellence in Construction Award for Sustainable Certified Construction
The Associated Builders and Contractors of Western Washington, 2007

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Seattle City Green Building

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environmental performance of
buildings in Seattle.
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Seattle City Light

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This new glass technology makes Zoomazium one of the first buildings in the nation to address the prevalent issue of bird strikes, which often result in bird deaths. The fritted glass also reduces solar heat gain in the building.

Vegetated screens — “green screens” — are placed strategically to create a visual buffer between the public pathway and staff spaces, while filtering low early sun.

Water

Native landscaping surrounds Zoomazium and was chosen not to need permanent irrigation as well as to enhance the Northwest forest experience. The vegetated roof system, which also tempers storm water runoff, does not need irrigation.

All of the building's interior plumbing fixtures are designed to reduce water consumption to 30% below baseline standards. Strategies include low flow flush valves and fixtures and dual flush toilets.

Energy

Zoomazium incorporates energy efficiency on all levels. A high performance building envelope and vegetated roof, together with operable windows and ceiling fans minimize the need for heating and cooling energy use. A raised access floor system supplies conditioned air at occupant level, which maximizes efficiency of heating and cooling, when conditions require them. Ample harvesting of natural daylight means low requirements for artificial lighting. The building is powered 100% by Green Power to eliminate reliance on fossil fuels.

Materials & Resources

As with its other buildings, the zoo chose materials and equipment to achieve a greater than 50-year life span. Animal holding

areas are concrete, mechanical equipment is robust, and water and sewer lines are ductile iron rather than plastic.

The design team worked to include recycled content products wherever possible, including green seal carpeting, recycled glass tile, recycled content steel and recycled rubber walk-off mats. FSC wood was used for the glu-lam beams, columns, and trusses in the primary structural system. 72% of the building's wood is FSC certified. Importantly, the building design also employs a high fly-ash content concrete mix (40% replacement of Portland cement), which greatly reduces the embodied energy of the mix while achieving the desired strength goals.

The project diverted 93% of construction waste, thanks to very good organization and handling of waste and materials on a tight construction site.

Zoomazium's raised access floor allows a great deal of future flexibility for changing exhibits and program elements, while also serving as an air supply plenum. This adaptability will allow future program changes with minimum construction and disruption.

Indoor Environment

The building was a conscious departure from the “black box” exhibit model, which typically relies entirely on artificial lighting. Instead, Zoomazium makes the most of the ample daylight available through its tall windows. Solar shading provided by existing trees tempers daylight to suitable levels. Ceiling fans ensure even temperatures throughout. Energy efficient artificial light, controlled by daylight sensors, is available when needed. In the event of a blackout during operating hours, the entire building will be illuminated and functional through natural daylighting.

Zoomazium uses a natural ventilation strategy based on cross ventilation between high and low operable windows. When needed, the raised floor system provides warm or cool air. The architect and engineers worked together closely to determine an ideal strategy using computer modeling programs that simulate airflow patterns and predict indoor air temperatures.

The vegetated roof, operable windows and adjacent foliage help keep the building cool during summer months. A large-scale physical model, informed by photographs of the existing trees, helped designers determine how much solar shading is provided naturally by the site and how much would be designed into building overhangs and screens.



www.seattle.gov/dpd/greenbuilding

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